"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

DELONE, N.L.; POPOVICH, P.R.; ANTIFOV, V.V.; VYSOTSKIY, V.G.

Effect of cosmic flight factors in the satellite-spaceships "Vostok-3" and "Vostok-4" on microspores of Tradescantia paludosa. Kosm. issl. 1 no.2:312-325 S-O '63. (MIRA 17:4)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

ANTIPOV, V. V.

AID Nr. 997-7 25 June

EXPERIMENTAL USE OF TRYPTAMINE IN MICE WITH ACUTE RADIATION SICKNESS (USSR)

Antipov, V. V. Meditsinskaya radiologiya, v. 8, no. 4, Apr 1963, 81-82.
S/241/63/008/004/004/006

Mice (both sexes) weighing 18 to 22 g were x-irradiated with 600 or 650 r from an РУМ-3 apparatus at 42.5 r/min. The animals received intraperitoneal injections of an aqueous solution of tryptamine (10 to 25 mg/kg) for a period of 5 to 7 days starting the second day after exposure. Experiments were conducted with three groups of mice: intact, irradiated, and irradiated and treated with tryptamine. In order to determine the effect of tryptamine on the formation of hemorrhages in irradiated mice, the number of petechiae was determined in the subcutaneous adipose tissue on the 4th, 5th, 7th, 10th, 13th, and 15th days after irradiation; the maximum number of petechiae occurred on the 7th and 10th days. Hardly any petechiae were observed in the intact animals. The toxic effect of tryptamine was quite considerable on the 2nd and 3rd days after exposure; thereafter it decreased. The changes in the body weight of test animals and controls were identical during a 10-day period. Administration of tryptamine (10 to 25 mg/kg) had no effect on the formation of petechiae.

[SGM]

Card 1/1

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

SAKSONOV, P.P.; ANTIPOV, V.V.; DOBROV, N.N.

Some results and problems in the field of cosmic radiobiology. Vest. AMN SSSR 18 no.2:13-20 '63. (MIRA 17:7)

1. Institut normal'noy i patologicheskoy fiziologii AMN SSSR.

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

ANTIPOV, V.V.

Formation of tissue hemolysins in liver extracts of white rats after feeding with linseed oil. Biul. eksp. biol. i med. 55 no.4: 77-81 Ap '63. (MIRA 17:10)

1. Predstavlena akademikom V.N. Chernigovskim.

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

DELONE, N.L.; POPOVICH, P.R.; ANTIPOV, V.V.; VYSOTSKIY, V.G.

New types of chromosome rearrangements in the microspores of Tradescantia paludosa under the influence of certain factors during spaceship flights. Dokl. AN SSSR 152 no.5:1227-1230 O '63. (MIRA 16:12)

1. Predstavleno akademikom N.M.Sisakyanom.

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

VOLYNKIN, Yu.M.; YAZDOVSKIY, V.I., prof.; GENIN, A.M.; GAZENKO, O.G.; GUROVSKIY, N.N.; YEMEL'YANOV, M.D.; MIKHAYLOVSKIY, G.P.; GORBOV, F.D.; SERYAPIN, A.D.; BAYEVSKIY, R.M.; ALTUKHOV, G.V.; KOPANEV, V.I.; KAS'YAN, I.I.; MYASNIKOV, V.I.; TERENT'YEV, V.G.; BRYANOV, I.I.; FEDOROV, Ye.A.; FOMIN, V.S.; ARUTYUNOV, G.A.; ANTIPOV, V.V.; KOTOVSKAYA, A.R.; KAKURIN, L.I.; TSELIKIN, Ye.Ye.; USHAKOV, A.S.; VOLOVICH, V.G.; SAKSONOV, P.P.; YEGOROV, A.D.; NEUMYVAKIN, I.P.; TALAPIN, V.F.; SISAKYAN, N.M., akademik, red.; KOLPAKOVA, Ye.A., red.izd-va; ASTAF'YEVA, G.A., tekhn.red.

[First group space flight; scientific results of medical and biological studies carried out during the group orbital flight of manned satellites "Vostok-3" and "Vostok-4] Pervyi gruppovoi kosmicheskii polet; nauchnye rezul'taty mediko-biologicheskikh issledovanii, provedennykh vo vremia gruppovogo orbital'nogo poleta korablei-sputnikov "Vostok-3" i "Voskot-4." Moskva, Izd-vo "Nauka," 1964. 153 p. (MIRA 17:3)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

ANTIPOV, V. V., GAZENKO, O. G. and SISAKYAN, N. M. (Acad. Sci. USSR)

"Satellite Biological Experiments" (Major Results and Problems)

Report presented at the COSPAR, 5th Intl Space Science Symposium, Florence, Italy, 8-20 May 1964

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

AKIMOV, V. V.; VYSOTSKIY, V. G.; DAVYDOV, B. I.; DOBROV, N. N.; MOROZOV, V. S.; MURIN, G. F.; NIKITIN, M. D.; SAKSONOV, P. P.

"Some problems in providing radiation safety in space flight."

report presented at the 5th Intl Space Science Symp, Florence, 12-16 May 64.

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

VOLYNKIN, Yu. M.; ANTIKOV, V. V.; GUDA, V. A.; NIKITIN, M. D.; SAKSONOV, P. P.

"The biological evaluation of radiation conditions on the path between the earth and the moon."

report presented at the 15th Intl Astronautical Cong, Warsaw, 7-12 Sep 64.

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

ZHUKOV-VERESHNIKOV, N. N.; VOLKOV, M. N.; MAYSKIY, I. N.; TRIBULEV, G. P.; RYBAKOV, N. I.; SAKSONOV, P. P.; ANTIPOV, V. V.; KOZLOV, V. A.; PODCHELOV, I. I.

"Results of microbiological and cytological investigation on Vostok type spacecraft."

paper presented at the 15th Intl Astronautical Cong, Warsaw, 7-12 Sep 64.

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

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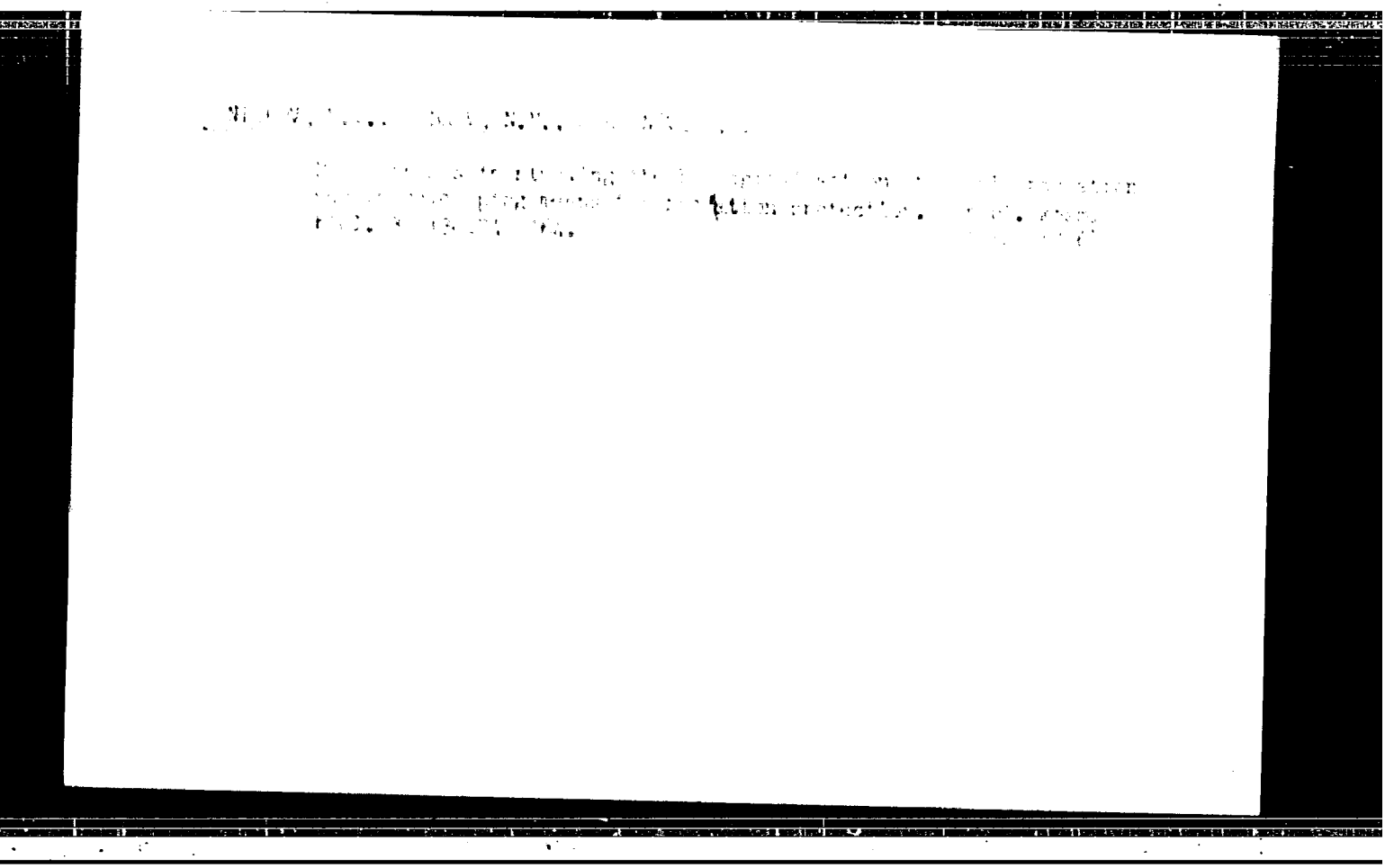

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

ZHUKOV-VERZHBINIKOV, N.N.; YAZDOVSKIY, V.I.; MAYSKIY, I.N.; TRIBULEV, G.F.; PEKHOV, A.P.; SAKSONOV, P.P.; RYBAKOV, N.I.; ANTIPOV, V.V.; ARTEM'YEV, N.S.; KOZLOV, V.A.; MISHCHENKO, B.A.; YUDIN, Ye.V.; RYBAKOVA, K.D.; ANICKIN, Ye.D.

Microbiological and cytological studies in conquering space. Probl. kosm. biol. 3:184-192 '64. (MIRA 17:6)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

SISAKYAN, N.M.; PANIN, V.V.; ANTIPOV, V.V.; [illegible], N.N.; SAMOYLOV, I.F.

Some conclusions and future development of the radiobiological research in space. Izv. AN SSSR. Ser. biol. no.3:341-351 My-Je '64. (MIRA 17:5)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

ACCESSION NR: AP4034805 S/0293/64/002/002/0320/0329

AUTHOR: Delone, N. L.; By*kovskiy, V. F.; Antipov, V. V.; Parfenov, G. P.; Vy*sotskiy, V. G.; Rudneva, N. A.

TITLE: Effect of Vostok-5 and Vostok-6 space flights on Tradescantia paludosa microspores

SOURCE: Kosmicheskiye issledovaniya, v. 2, no. 2, 1964, 320-329

TOPIC TAGS: space flight, Vostok 5, Vostok 6, microspore, mitosis, vibration, acceleration, weightlessness, Tradescantia

ABSTRACT: Exposure of Trandescantia microspores to orbital flights in Vostok-5 and Vostok-6 spaceships adversely affected the mitotic mechanism. Cytological analysis of the samples revealed five types of abnormalities: Type I, incomplete mitosis due to nondisjunction of chromosomes; Type II, "rosette" chromosome alignment on the metaphase plate; Type III, nondisjunction aberrations in spindle orientation (the nuclei in the experimental and in the control spores are located in different planes); Type IV, nondisjunction of chromosomes or delayed telophase; Type V, multipolar mitosis leading to the formation

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

ACCESSION NR: AP4034805

of polynucleated cells. Comparison of experimental and control samples indicated that the aberrations described are due to such factors as accelerations and vibrations rather than to weightlessness. It was concluded that weightlessness has no significant zonetic effect within time limits of 120 hr. Orig. art. has: 5 figures and 6 tables.

ASSOCIATION: none

SUBMITTED: 11Dec63 DATE ACQ: 20May64 ENCL: 00

SUB CODE: PH, LS NO REF SOV: 001 OTHER: 000

ATD PRESS: 3041

Card 2/2

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

ACCESSION NR: AP4034809 S/0293/64/002/002/0346/0351

AUTHOR: Antipov, V. V.; Milovidov, I. V.

TITLE: Problems in bioastronautics at the Fourteenth Congress of the International Astronautics Federation

SOURCE: Kosmicheskiye issledovaniya, v. 2, no. 2, 1964, 346-351

TOPIC TAGS: bioastronautics, cosmic radiation, weightlessness, space flight, synchrocyclotron, ionizing radiation, radiobiology, space biology

ABSTRACT: Soviet scientists presented seven reports at the Fourteenth Congress of the International Astronautics Federation. The Soviet reports dealt with the influence of cosmic radiation and weightlessness. The data were obtained from space flights and experiments using a synchrocyclotron at the Ob"yedinenny*y institut yaderny*kh issledovaniy (Joint Institute of Nuclear Research) at Dubna. In two communications N. M. Sisakyan, V. I. Yazdovskiy, V. V. Antipov, P. P. Saksonov, V. S. Shashkov, B. L. Razgovorov, G. F. Murin and V. S. Morozov reported on the biological effect of ionizing radiation during space flights and the results of study of the biological effect of high-energy protons on various biological objects. The author reviewed radiobiological investigations on seven satellite-ships. It

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

ACCESSION NR: AP4034809

was found that under the influence of various flight factors, including cosmic radiation, the hereditary structures of various biological objects such as the marrow of mice, the seeds of higher plants, lisogenic bacteria and the microspores of Tradescantia experience changes having a small but statistically reliable value. It also was established that under these conditions cosmic radiation caused no stable and well expressed changes in the life functions of mammals or man. Experiments in the study of the relative biological effect of high-energy protons in comparison with gamma rays were reported and information given on chromosomic changes in the cells of the marrow of mice and the seeds of higher plants. The investigations included determination of recessive sex linked and dominant lethal mutations in Drosophila melanogaster. The authors mentioned the effectiveness of a number of pharmacologic preparations as protection against protons with energies in the 120-660 Mev range. In two reports Yu. M. Volynkin, P. P. Saksonov, I. A. Savenko, V. V. Antipov, N. N. Dobrov and M. D. Nikitin discussed the principal problems involved in radiation safety in space flights and the specific steps taken to ensure such safety during the "Vostok" flights. The physiology of blood circulation and weightlessness were discussed by R. M. Bayevskiy and O. G. Gazenko on the basis of data from the 2d and 5th satellite-ships and the "Vostok" spaceships. They described the phase character of the reactions of the blood circulation system to the effect of weightlessness. They postulated that changes

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

ACCESSION NR: AP4034809

in the functional state of the cardiovascular system were caused by a decrease of muscular activity during weightlessness, especially a relative increase in the influence of the vagus nerve system and the development of asynchronous behavior of the right and left sides of the heart. They noted that maintenance of an adequate functional level of the blood circulation system is very important for maintaining the work ability of cosmonauts on long flights and safe return under conditions of normal gravitation. A speech of a general nature was made by Yu. A. Gagarin, who was honored by a special session.

ASSOCIATION: None

SUBMITTED: 00	DATE ACQ: 20May64	ENCL: 00
SUB CODE: PH, LS	NO REF SOV: 000	OTHER: 000

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APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

ACCESSION NR: AP4043503 S/0293/64/002/004/0641/0647

AUTHOR: Snashkov, V. S.; Saksonov, P. P.; Antipov, V. V.; Morozov, V. S.; Murin, G. P.; Kazkovorov, B. L.; Suvorov, N. N.; Fedoseyev, V. M.

TITLE: Effectiveness of pharmacological and chemical protection under conditions of gamma radiation and protons with energies of 660 and 120 Mev

SOURCE: Kosmicheskiye issledovaniya, v. 2, no. 4, 1964, 641-647

TOPIC TAGS: radiation protection, pharmacology, chemistry, radioprotective pharmaceutical, radioprotective chemical, gamma radiation, proton, corpuscular radiation

ABSTRACT: The comparative effects of gamma and corpuscular radiation were studied using 1360 white mice. In each of three tests, the protective influence of AET, mercamine, serotonine, 5-methoxytryptamine, tryptamine, and 5-oxytryptophane was tested. Experimental animals were compared with irradiated controls (mice not given protective agents) and biological controls (mice under normal conditions). In the first test, 240 mice were irradiated with an 850-r(DL_{100}) dose of cobalt-60 gamma rays. All irradiated controls perished. Of those administered radioprotective agents, mice given AET (150 mg/kg),

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ACCESSION NR: AP4043503

5-methoxytryptamine (75 mg/kg), serotonine (50 mg/kg), and mercamine (150 mg/kg) showed significantly greater viability and longer mean longevity than mice given tryptamine (100 mg/kg) and 5-oxytryptophane (250 mg/kg). In the second test, 400 mice received 660 Mev corpuscular radiation with protons in an 1178-rad (DL_{100}) dose. Of 160 irradiated controls, only 3 survived for 30 days. Of mice administered radioprotectors, those given AET and 5-methoxytryptamine showed the greatest survival. Mercamine and serotonine exerted the same protective influence as in the test with gamma rays. In other investigations, AET has been shown to be an effective protective agent even during 1600 rad of absolutely lethal proton radiation. In the third test, 220 mice received 1200—100 rad (DL_{100}) doses of 120 Mev protons. Of 60 irradiated controls, 2 survived for 30 days. The protective influence of AET, serotonine, mercamine, and 5-methoxytryptamine was preserved in this test. Finally, it was concluded that the relative biological effectiveness of 660 and 120 Mev protons was 75% that of gamma rays. Orig. art. has: 4 tables.

ASSOCIATION: None

Card 2/3

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

EL'PERIN, I. T.; ANTIPOV, V. V.; GALERSHTEYN, D. M.; PAVLOVSKIY, L. M.; KHOKHLOV, V. Z.

"Study of transfer processes in two-phase systems of suspension type with some properties of phase interaction arrangement."

report submitted for 2nd All-Union Conf on Heat & Mass Transfer, Minsk, 4-12 May 1964.

All-Union Sci Res Inst NSM

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

ACCESSION NR: AP4039713 S/0205/64/004/003/0337/0343

AUTHOR: Sisakyan, N. M.; Antipov, V. V.; Saksonov, P. P.; Yazdovskiy, V. I.

TITLE: The biological action of cosmic radiation under space flight conditions

SOURCE: Radiobiologiya, v. 4, no. 3, 1964, 337-343

TOPIC TAGS: manned space flight, cosmic radiation, Vostok, radiobiology

ABSTRACT: The article reviews the historical development of experiments concerning the effects of cosmic radiation on the organism and concentrates on results of the latest Soviet space probes. The mean intensity of cosmic radiation registered by means of various dosimetric devices was 10 ± 2 mrad per day on Sputniks 2, 4, and 5, and on Vostoks 1, 2, 3, and 4. The bone marrow cells of mice, seeds of plants, lysogenic bacteria, and Tradescantia microspores all exhibited small but significant alterations as a result of exposure to conditions of space flight and cosmic radiation.

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

ACCESSION NR: AP4039713

ASSOCIATION: none

SUBMITTED: 29Dec63 DATE ACQ: 19Jun64 ENCL: 00

SUB CODE: LS, AA NO REF SOV: 014 OTHER: 009

Card 2/2

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

ACCESSION NR: AP4039714 S/0205/64/004/003/0344/0348

AUTHOR: Volyankin, Yu. M.; Parin, V. V.; Antipov, V. V.; Guda, V. A.; Dobrov, N. N.; Nikitin, M. D.; Saksonov, P. P.

TITLE: Radiation safety measures during flights by Soviet cosmonauts in Vostok space ships

SOURCE: Radiobiologiya, v. 4, no. 3, 1964, 344-348

TOPIC TAGS: manned space flight, Vostok, cosmic radiation, galactic radiation, radiation dosimetry, telemetry, radiobiology

ABSTRACT: Radiation safety measures for cosmonauts in the Vostok series have involved measurements of the integral doses within cabins, conducting biological dosimetric probes of cosmic radiation, and the use of antiradiation pharmaceuticals during emergency situations. The results of radiobiological investigations conducted during the Vostok flights agree with those of other physical probes and indicate that the radiation hazards to be encountered during short space flights are minimal. Clinical examinations of cosmonauts following Vostok flights showed no deleterious effects of cosmic radiation.

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

DELONE, N.L.; BYKOVSKIY, V.F.; ANTIPOV, V.V.

Development of disturbances in the mitosis mechanism of Tradescantia paludosa microspores under the influence of different flight periods on the Vostok-5 spaceship. Dokl. AN SSSR 159 no.2:439-441 N '64. (MIRA 17:12)

1. Predstavleno akademikom N.M. Sisakyanom.

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

ACCESSION NR:

AUTHOR: Antipov, V. V.; ... Panchenkova, E. F.; Saksonov, P. P.; ...

TITLE: Reactivity of the organism following exposure to some space-flight factors

SOURCE: Kosmicheskiye issledovaniya, v. 2, no. 5, 1964, 797-804

TOPIC TAGS: ionizing radiation, corpuscular radiation, centrifugation, physical endurance, stimulation test, rat, mouse, space flight simulation

ABSTRACT: Experiments were conducted on 700 mice and 80 rats to study the resistance of the organism ... acceleration and high-energy ... radiation ... ionizing radiation ... of animals ... was investigated. In one case, mice were ... 1, 3, and 7 days after a single exposure to a 10-min, ...-g, chest-to-

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ACCESSION NR: AP4046783

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spine acceleration. In another case, animals were exposed to centrifugation three times in one week, 4 hr after which they were subjected to exercise. The second series of tests involved the exposure of male rats to 700—950 and 1400—1770 rad (60 ± 10 rad/min) doses of 120-Mev [illegible] cyclotron with a current density of [illegible] animals were then tested for [illegible] exercise [illegible] after irradiation. Finally, the weight of the [illegible] and left adrenal was measured. In the third series, endurance to exercise was investigated following the combined action of acceleration [illegible] ionizing radiation [illegible] exhausted in a water tank where the water temperature was [illegible]. It was found that the physical endurance of mice was [illegible] lower 4 hr after acceleration, with increase [illegible] afterwards. There was a seasonal variation in the [illegible] endurance [illegible] exposed to accelerations. Changes in the [illegible] to physical strain was correlated with shifts in blood [illegible]. Physical endurance was lowered in animals 40 days after [illegible] rad doses of 120-Mev

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

L 11004-65
ACCESSION NR: AP4046783

protons. Preliminary centrifugation somewhat increased the resistance of animals to ionizing radiation. Orig. art. has: 2 tables and 3 figures.

ASSOCIATION: none

SUBMITTED: 07May64 ENCL: 00 SUB CODE: LS, PH

NO REF SOV: 010 OTHER: 007 ATD PRESS: 3135

Card 3/3

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

SHASHKOV, V.S.; FEDOSEYEV, V.M.; BURKOVSKAYA, T.Ye.; SAKSONOV, P.P.; ANTIPOV, V.V.; YEVDOKIMOV, Yu.N.

Study of the radioprotective activity of some newly synthesized thiazoline derivatives. Radiobiologiia 4 no.6:927 '64. (MIRA 18:7)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova, khimicheskiy fakul'tet.

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

ACCESSION NR: AP4049492 S/0020/64/159/002/0439/0441

AUTHOR: Delone, N. L.; By*kovskiy, V. F.; Antipov, V. V.

TITLE: The development of mitotic disruption in Tradescantia paludosa microspores under the influence of different flight duration on Vostok-5

SOURCE: AN SSSR. Doklady*, v. 159, no. 2, 1964, 439-441, and insert facing p. 440

TOPIC TAGS: spaceflight, Vostok-5, mitotic disruption, mitosis, weightlessness, microspore, Tradescantia paludosa

ABSTRACT: The microspores of Tradescantia paludosa were fixed at intervals of 1.5, 76, and 120 hr after the launching of Vostok-5 and at 3.5 following its landing. Five types of mitotic aberration (similar to the previous five types registered during the Vostok-4 flight) were noted. In type I, the nucleus remained at the periphery of the cell during prophase, followed by chromosomal nondisjunction during the subsequent mitotic phases. In type II, during prophase the nucleus migrated towards the center of the cell, followed by a

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L 15637-65

ACCESSION NR: AP4049492

rosette formation during metaphase and by nondisjunction. In type III, the spindle orientation in the test spores differed from that in the controls. In type IV, chromosomal nondisjunction and extended telophase occurred. In type V, multipolar mitoses occurred. The aberrations described do not occur exclusively in any given group of spores but rather are evenly distributed throughout the test groups. Orig. art. has: 5 figures.

ASSOCIATION: none

SUBMITTED: 27Feb64 ENCL: 00 SUB CODE: LS, PH

NO REF SOV: 001 OTHER: 000 ATD PRESS: 3144

Card 2/2

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

L 27408-65 EWO(j)/EWG(r)/EWT(1)/FS(v)-3/EWG(v)/EWG(a)/EWG(c) Pe-5 DD/GW

ACCESSION NR: AP5006389 S/0216/65/000/001/0003/0009

AUTHOR: Parin, V. V.; Antipov, V. V.; Raushenbakh, M. [illegible]; Saksonov, P. P.; Shashk[illegible], V. [illegible]; Chernov, G. A.

TITLE: Changes in the concentration of serotonin in the blood of animals caused by the effects of ionizing radiation and the dynamic factors of space flight

SOURCE: AN SSSR. Izvestiya. Seriya biologicheskaya, no. 1, 1965, 3-9

TOPIC TAGS: blood serotonin level, ionizing radiation effect, x ray, vibration, vibration effect, combined factors effect, mouse, rat, guinea pig, dog, monkey, acceleration, weightlessness

ABSTRACT: Experiments were performed in order to test the effects of space flight in orbital spaceships and of ionizing radiation [illegible] conditions on the concentration of serotonin [illegible] method described by Erspamer and [illegible] serotonin in the blood. This method is based [illegible] of the smooth intestinal muscle [illegible] guinea pigs, rats, and mice were subjected to lethal doses of gamma rays [illegible] in the radiation experiments. In dogs, monkeys, and guinea pigs the disruption in the serotonin

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

ACCESSION NR: AP5003895

level of the blood was very marked and was in direct relation to the severity of the radiation sickness, while in rats and mice the drop in the concentration of [illegible] was less marked and did not depend on the extent of radiation [illegible] [illegible] animals developed a [illegible] [illegible] radiation [illegible] while [illegible] [illegible] The [illegible] the [illegible] during radiation sickness is the [illegible] the formation of ser[illegible] the digestive tract. The [illegible] [illegible] [illegible] carried on the fourth and fifth [illegible] dropped [illegible] times in [illegible] [illegible] [illegible] tonin level of these animals returned to normal. During the period of 80—240 days after space flight, the serotonin level in dogs remained normal. Mice and guinea pigs subjected to vibration (frequency: 35 and 70 cps, amplitude: 0.4 mm), for fifteen minutes also showed a drop in the serotonin level of the blood during the [illegible] days, with a subsequent return [illegible] [illegible] vibration is one of the factors responsible [illegible] drop in the concentration of serotonin in the blood during space flight. [illegible] art. has: 4 tables. [illegible]

[illegible]

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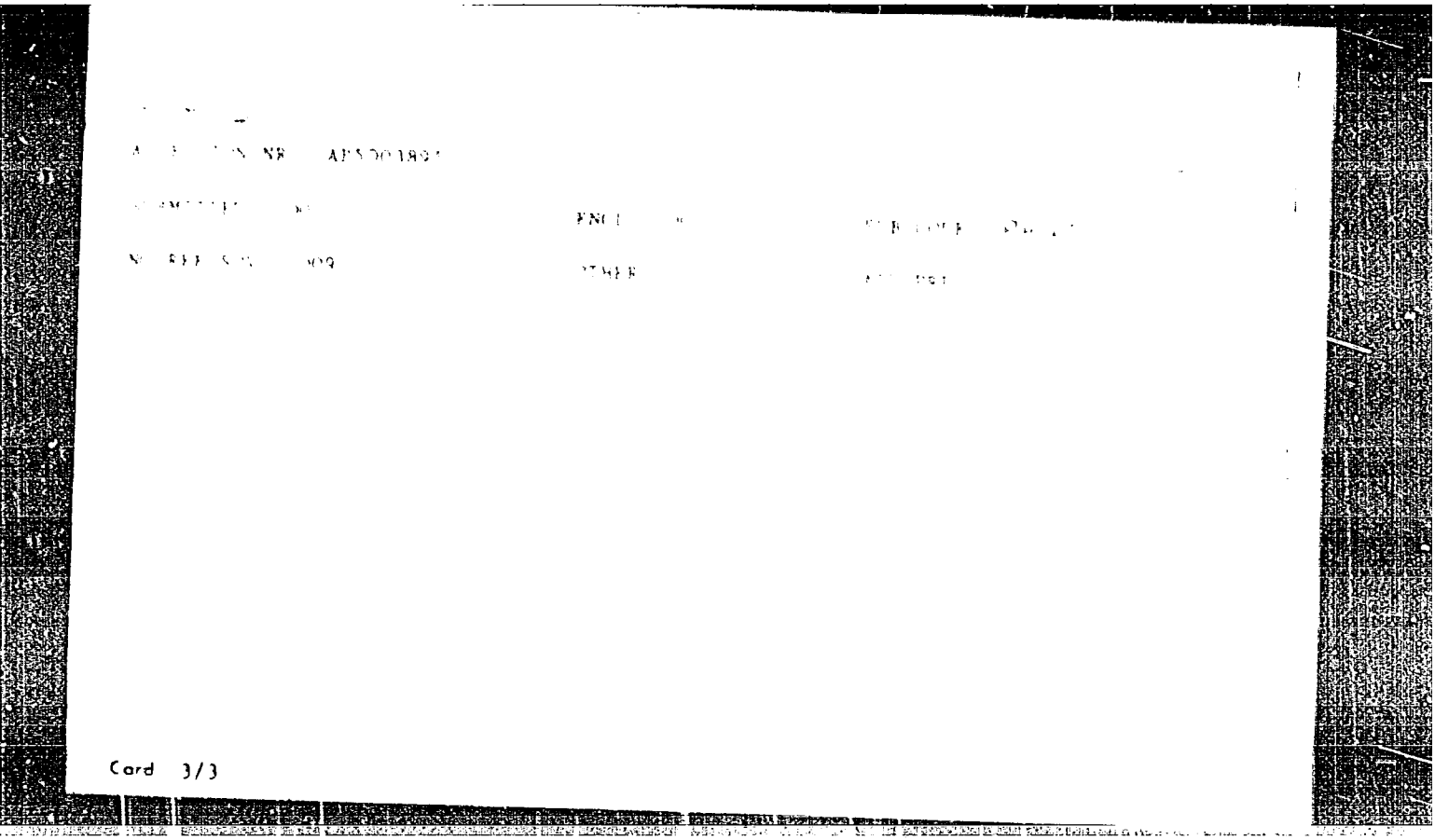
"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2



Card 3/3

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

L 29511-65 EWG(j)/EWG(r)/EWT(1)/EWG(v)/EWG(a)/EWG(b)/FS(v)-3 [illegible] DD/RD

ACCESSION NR: AP5005444 S/0293/65/003/001/0159/0166

AUTHOR: Davydov, B. I.; Antipov, V. V.; Okorov, I. P.

TITLE: Reaction of the irradiated organism to critical accelerations

SOURCE: Kosmicheskiye issledovaniya, v. 3, no. 1, 1965, 159-166

TOPIC TAGS: x irradiation, acceleration, acceleration effect, radiation effect, mouse, acceleration adaptation, centrifugation

ABSTRACT: A study has been made of the effects of radiation on the ability of male mice to withstand critical magnitudes of acceleration. In all, 1400 animals were studied. In evaluating the viability of animals exposed to acceleration, their condition was determined after exposure. The purpose of using an extremely high acceleration was to reveal those subtle and unstable compensatory mechanisms which are not ordinarily apparent. Animals were irradiated in an RUM-11 device in doses of 250, 500, 700, and 850 r (13 r/min) and then exposed to accelerations of 40—42 g for 3 min in a back-to-chest position. The radius of the centrifuge was 0.11 m. At these accelerations, approximately 50% of the control animals died. Any trend which differed from this figure was used as an index of changes in stability on the part of the irradiated animals. Some results of the experiments are given in Table 1 and Figs. 1, 2, 3, and 4 of the Enclosure. The authors concluded that mice

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ACCESSION NR: AP5005444

became more tolerant of acceleration 1—7 days after exposure to 250, 500, and 700 r. There is a relationship between the irradiation dose and the acceleration tolerance. Control animals exposed to preliminary centrifugation showed increased resistance to repeated accelerations which was not observed in animals irradiated with 760 r on the first day after exposure. Orig. art. has: 1 tables and 6 figures. [CD]

ASSOCIATION: none

SUBMITTED: 09Jul64 ENCL: 05 SUB CODE: PH,LS

NO REF SOV: 007 OTHER: 012 ATD PRESS: 3197

Card 2/7

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

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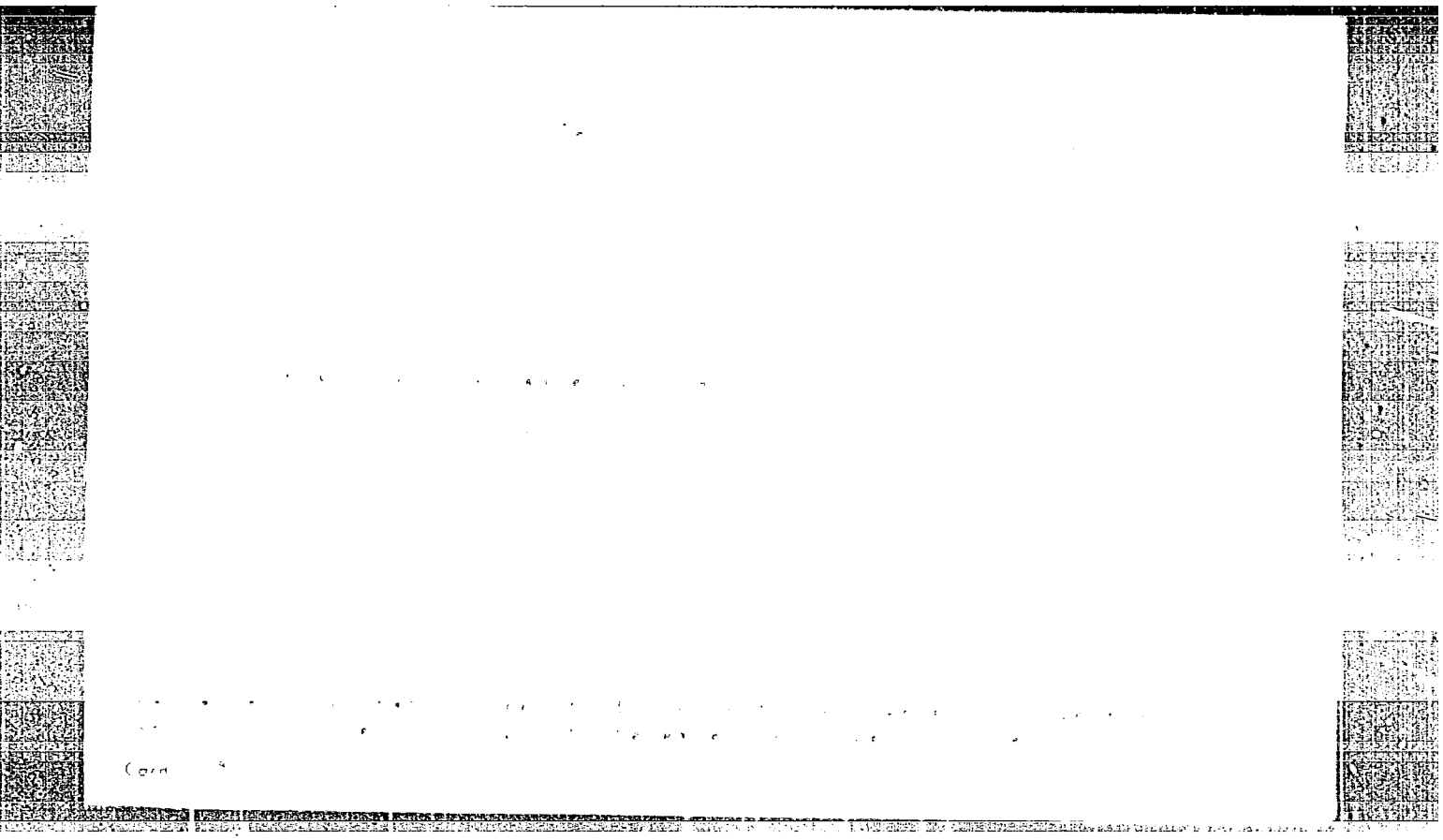

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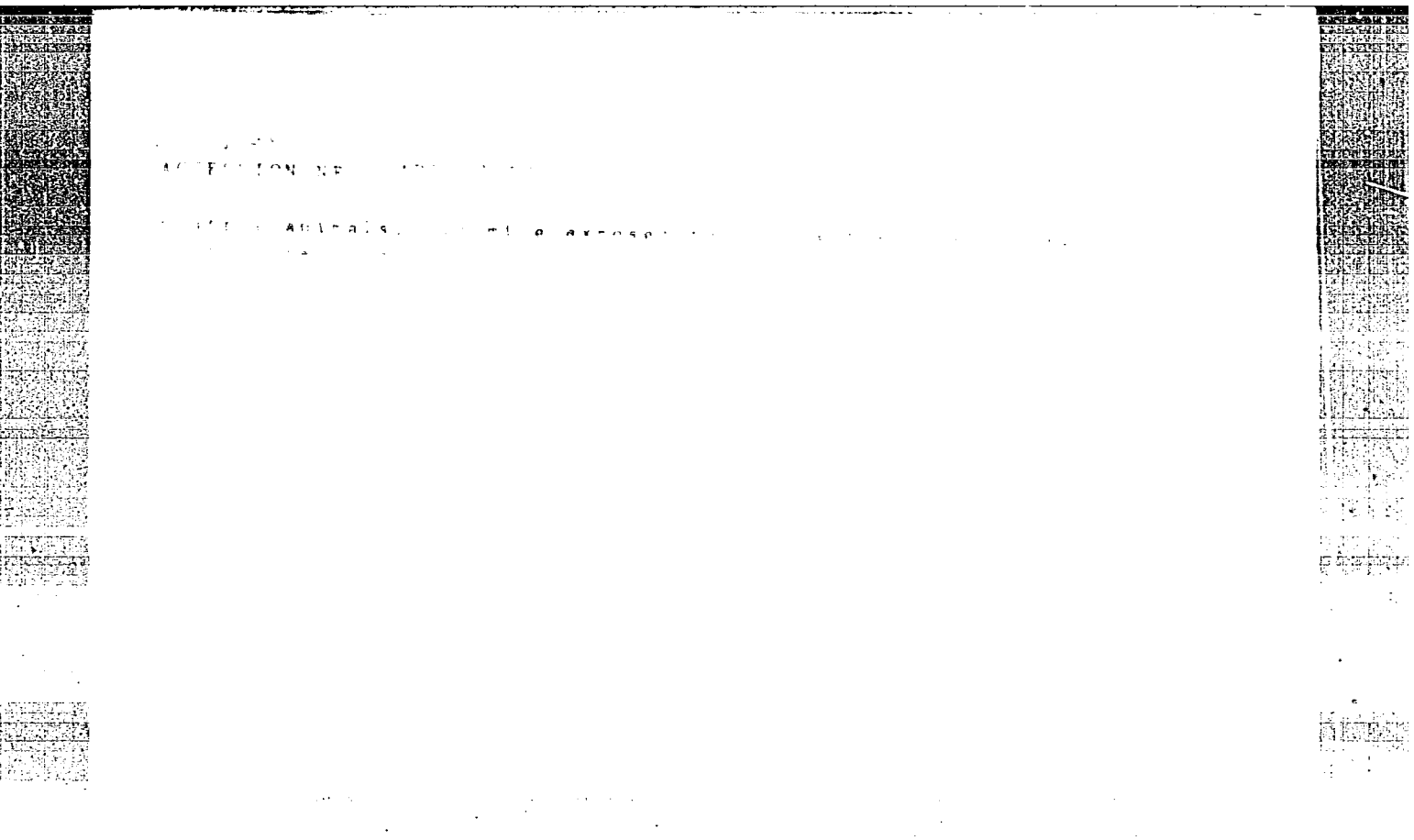

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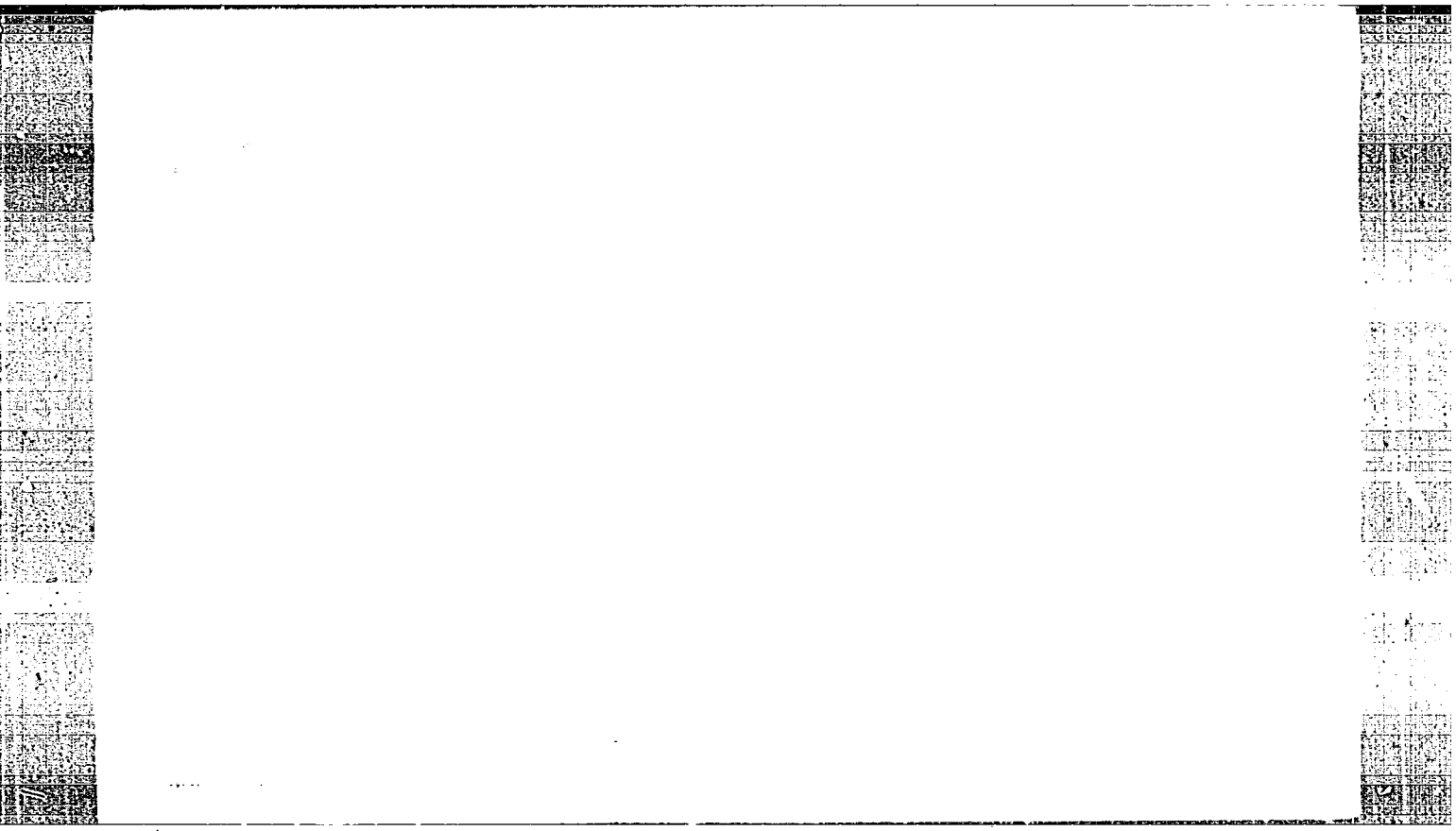

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and radiation dose in the dynamics of changes in serotonin content and ceruloplasmin activity. In general, lowered serotonin content in response to various stimulants depended upon the species of animal and its individual peculiarities. The authors conclude that it

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

TITLE: The biological effect of cosmic radiation during passage of solar flares in the Earth-Moon route in model experiments

SOURCE: Kosmicheskiye issledovaniya, v. 3, no. 2, 1965, 325-329

TOPIC TAGS: cosmic radiation, biological effect, solar flare, solar flare model, gamma ray, Co^{60}, mouse, radioprotector, radiation drug, lunar trajectory

ABSTRACT: The possibility of modeling the biological effect of ionizing radiation

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L 38560-65

ACCESSION NR: AP5009631

diet and also irradiated in plexiglas cages, had a 90% mortality rate in the same period of time. Pharmacologic and chemical defenses from the effect of radiation did not differ in principle in the model of simulated [illegible] conditions of irradiation. [illegible]

ASSOCIATION: none

SUBMITTED: 01Dec64 ENCL: 00 SUB CODE: LS, AA

NO REF SOV: 004 OTHER: 004 ATD PRESS: 3221

Card 2/2

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

AUTHOR: [illegible]rdon, L. [illegible], Kanter, T. S.; Antipov, V. V., Vysotskiy, V. [illegible]

TITLE: The effect [illegible] space flight factors on phys[illegible] processes [illegible] the germination of some seeds of higher plants

SOURCE: Kosmicheskiye issledovaniya, v. 3, no. 3, 1965, 473-479

TOPIC TAGS: Vostok 5, Vostok 6, space flight, biological effect, plant physiology, histochemistry, plant growth

ABSTRACT: On the Vostok-5 and Vostok-6 flights, the sensitivity of plant seeds to space-flight factors was measured from the following factors: percentage of germination, energy of sprouting, development of sprout, and [illegible] [illegible] varieties of plants were [illegible] mustard, tomato, lettuce, onion, cucumber, and wheat. The percentage of germination is not a good index of the effect of space flight since significant changes which do not kill the seed go unnoticed. Study of the course of germination of seeds after the flights showed that the viability [illegible] were a tendency to stimulation of the growth [illegible]

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L 54724-65
ACCESSION NR: AP5015675

Vostok-3) and an unexplained depression of onion growth. Weighing of sprouts at the end of the experiment showed no differences between experimental and control [illegible] cucumber sprouts [illegible] rate of development [illegible] of wheat [illegible] revealed no essential difference in the content of proteins, [illegible] sugar, [illegible] showed increased activity of [illegible]. These peculiarities are due to more intense growth of the seed leaf in seeds exposed to space flight factors. It was concluded that space flight factors have a definite influence on the meristematic tissues of the seed leaf. Changes arising in these tissues do not always lead to disruption of germination [illegible] of sprouting of seeds, but they can be observed in the [illegible] period during differentiation of tissue and subsequent growth. Orig. art. has 7 tables and 3 figures. [illegible]

ASSOCIATION: none

SUBMITTED: 25Jul64 ENCL: 00 SUB CODE: [illegible]

NO REF SOV: 004 OTHER: 000 ATD PRESS: 4031

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APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

AUTHOR: Delone, N. L.; Rudneva, N. A.; Antipov, V. V.

TITLE: The effect of the Vostok-5 and Vostok-6 flights on primary rootlet chromosomes of some higher plant seedlings

SOURCE: Kosmicheskiye issledovaniya, v. 3, no. 3, 1965, 480-487

TOPIC TAGS: Vostok 5, Vostok 6, space flight, biological effect, chromosome rearrangement, plant seedling, plant genetics, mutation

ABSTRACT: Dry seeds of some higher plants (carrot, tomato, pine, bean, cucumber, wheat, lettuce, and mustard) were carried on the Vostok-5 and Vostok-6 flights to study the genetic effect of space-flight factors. After the flight, the seeds were [illegible] primary rootlets were fixed when [illegible]

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

L 54723-65
ACCESSION NR: AP5015676

SUBMITTED: [illegible] ENCL: 00 SUB CODE: IE

NO REF GOV: 012 OTHER: 007 ATD PRESS: 4031

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APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

AUTHOR: Zhukov-Verezhnikov, N. N.; Mayskiy, I. N.; Pekhov, A. P.; Antipov, V. V.; [illegible]

TITLE: Investigation of the biological effect of space-flight factors using lysogenic bacteria in experiments on Vostok [illegible] and [illegible]

SOURCE: Kosmicheskiye issledovaniya, v. 3, no. [illegible], 1965, [illegible]

TOPIC TAGS: space flight, biological effect, E. coli, phage activity, bacteria, genetics, lysogenic bacteria, chemical antiradiation agent

ABSTRACT: The genetic effects of space flight on lysogenic bacteria were studied, and a chemical means of protection was investigated. The chemical agent was [illegible] [illegible] Vostok [illegible] [illegible]

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

L 54862-63

ACCESSION NR: AP50[illegible]

flight the number of viable bacteria was determined, and an analysis of [illegible] [illegible]

ASSOCIATION: none

Card 2/3

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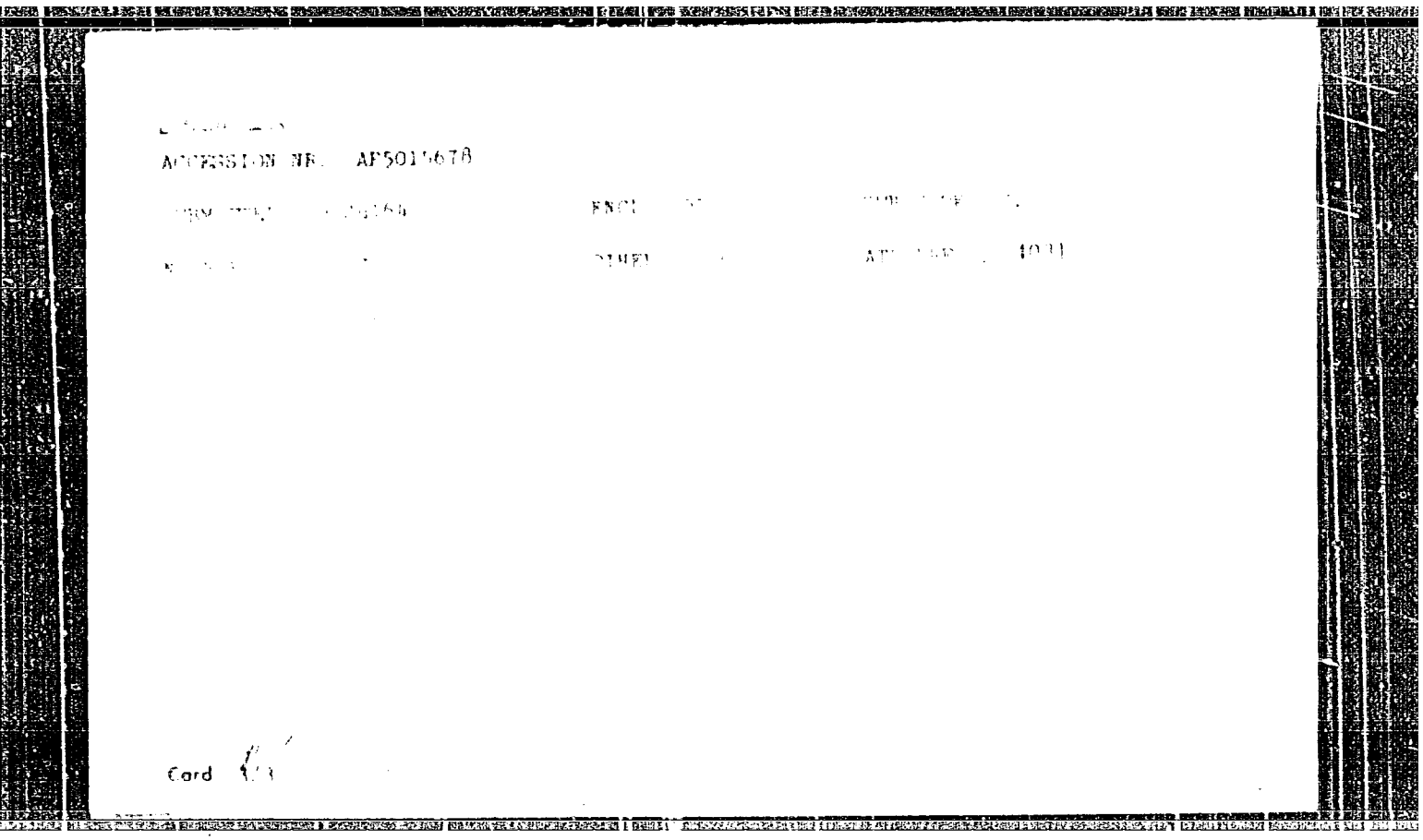

ACCESSION NR: AP5017678

Card 1/1

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L 49425-65 EEO-2/EWO(j)/FSS-2/EWG(r)/EWT(l)/FS(s)/EWT(m)/FS(v)-3/EEC(k)-2/EWG(v)/ ETC/EEC-4/EEC(t)/EWD(a)-2/EWD(c)/EWA(h) Pe-5/Pi-4/Po-4/Pq-4/Pac-4/Pae-2/Peb [illegible]

ACCESSION NR: AP5011[illegible] [illegible]

AUTHOR: Antipov, V. V. (Candidate of medical sciences); Nikitin, M. [illegible]; Saksonov, P. P. (Doctor of medical sciences)

TITLE: Biological evaluation of the radiation hazard during manned lunar flights

SOURCE: Priroda, no. 4, 1965, 46-53

TOPIC TAGS: manned space flight, radiation [illegible] effect, radiation protection, solar flare, space [illegible]

[illegible] Since it is likely that the Moon will be the first [illegible]

[illegible] from a large solar flare, the dose absorbed will range [illegible]

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

ACCESSION NR: AP[illegible]

[illegible] Under terrestrial conditions [illegible]

and duration of dose, and whether the organism has been [illegible] irradiated. The functional condition of the organism also determines its

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L 49425-65

ACCESSION NR: AP5011557

stance, there is a 16% chance of exposure to radiation from a flare of the type observed on 22 August 1958, a 5.8% chance of exposure to a flare like [illegible] Ma[illegible] a [illegible] % chance of exposure [illegible] a flare [illegible] [illegible] flare [illegible]

[illegible] calculating the integral dose from primary [illegible] radiation and [illegible] radiation from the natural and artificial belts [illegible] it is [illegible] anticipated that a value of 10 rem would not be exceeded in a two-week flight during a quiet-sun period if cosmonauts were protected with [illegible] g/cm[illegible]. This value would have to be increased to [illegible] g [illegible] [illegible] protons from a flare similar to the [illegible] 22 August 1958 [illegible] [illegible] the type which occurred on 10 July 195[illegible] and [illegible] February [illegible]

Two methods exist for decreasing the radiation hazard from protons. The first method involves the forecasting of solar flares, which at the present time can be achieved with up to 75% accuracy for [illegible] days ahead. Since [illegible] a long period of time, the problem of forecasting flare activity must be examined more thoroughly in terms of [illegible]

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ACCESSION NR: AP[illegible]11967

purpose which can be used both on Earth and in the spacecraft. The second method is to increase the resistance of the organism to the effects of radia [illegible] different medical preparations [illegible] experiments [illegible] this field have increased hopes that the medical [illegible] from ionizing radiation will be one of the prime factors in a radiation safety system, [illegible] art. has 2 tables, 1 graph, and [illegible] formulas.

ASSOCIATION: none

SUBMITTED: 00	ENCL: 00	SUB CODE: AA, LS
NO REF SOV: 001	OTHER: 000	ATD PRESS: 4004-F

Card 4/4

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

FARIN, [illegible]; [illegible]
CHERNOV, G.A.

Change in the concentration of serotonin in animal tissue under the influence of ionizing radiation and the dynamic factors of space flight. Izv. AN SSSR Ser. biol. 30 no.1:[illegible] Ja-F '65.
(MIRA 18:2)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

ANTIPOV, V.V., kand. med. nauk; NIKITIN, M.D.; SAKSONOV, P.P., doktor med. nauk

On the route from earth to moon; biological evaluation of the radiation danger of space flight. Priroda 54 no.4:46-53 Ap '65. (MIRA 18:5)

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

L 53048-65 EWG(j)/EWT(m)
ACCESSION NR: AP5014856 UR/0020/65/162/003/0688/0690

AUTHOR: Saksonov, P. P.; Antipov, V. V.; Shashkov, V. S.; Razgovorov, B. L.; Murin, G. F., Morozov, V. [redacted]

TITLE: The biological effect of high-energy protons

SOURCE: AN SSSR. Doklady, v. 162, no. 3, 1965, 688-690

TOPIC TAGS: high energy proton, RBE, chemical antiradiation agent, AET, cystamine, serotonin, 5 methoxytryptamine, mouse

ABSTRACT: The RBE of 120- and 660-Mev protons was determined for different biological objects, and the antiradiation effectiveness of certain [illegible] was tested. The objects were irradiated from a synchrocyclotron [illegible] approximately [illegible] [illegible] gamma rays. Experiments showed that [illegible] criteria for rats and mice [illegible], and [illegible] protons are [illegible] less effective than gamma rays. Similar results were obtained by other experimenters.

Cord 1/2

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L 53043-65

ACCESSION NR: AP5014856

The antiradiation properties of various pharmacochemical substances were tested during irradiation with 120- and 660-Mev protons and also with gamma rays. Animals were injected intraperitoneally with the [illegible] ation with lethal doses. When AET, 5-meth[illegible] creatine sulfate were injected into mice, [illegible] survived, and those that died [illegible] than the [illegible] treated animals [illegible] survived, and with tryptamine hydrochloride [illegible] survived. The RBE of 1[illegible] and 660-Mev protons, as determined by [illegible] experiments on mice and rats, and by other experiments [illegible] fruit flies, seeds, a[illegible] logical objects, does not exceed 1. An RBE higher than 1 was observed for 510-Mev protons during experiments with dogs, and for 730-Mev protons with monkeys. The type of animal and the experimental methods used account for this difference. [illegible]

ASSOCIATION: none

SUBMITTED: 31Jul64 ENCL: 00 SUB CODE: LS

NO REF SOV: 011 OTHER: 003 ATD PRESS: 4015

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

SAKSONOV, P.F.; ANTIPOV, V.V.; DOBROV, N.N.; SHASHKOV, V.S.; KOZLOV, V.A.; PARSHIN, V.S.; LAVYDOV, B.I.; RAZGOVOROV, P.L., MOROZOV, V.S.; NIKITIN, M.D.

Prospects for pharmacochemical protection against radiation injury in space flight. Probl. kosm. biol. 4:110-116 '65. (MIRA 18:9)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

VOLYNKIN, Yu.M., ANTIPOV, V.V., GUDA, V.A., NIKITIN, M.D., SAKSONOV, P.P.

Biological evaluation of radiation conditions on route from the earth to the moon. Probl. kosm. biol. 4:127-138 '65. (MIRA 18:9)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

ANTIPOV, V.V.; DELONE, N.L.; PARFENOV, G.P.; VYSOTSKIY, V.G.

Results of biological tests during the flight on "Vostok" ships with the participation of the astronauts. Probl. kosm. biol. 4:248-260 '65. (MIRA 18:9)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

ZHUKOV-VEREZHNIKOV, N.N.; RYBAKOV, N.I.; KOZLOV, V.A.; SAKSONOV, P.P.; DOBROV, N.N.; ANTIPOV, V.V.; PODOPLELOV, I.I.; PARFENOV, G.P.

Summary of microbiological and cytochemical studies on "Vostok" spaceships. Probl. kosm. biol. 4:261-269 '65. (MIRA 18:9)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

RAZGOVOROV, B.L.; MOROZOV, V.S.; SHASHKOV, V.S.; ANTIPOV, V.V.; DOBROV, N.N.; KONNOVA, N.I.; L'VOVA, T.S.; SAKSONOV, P.P.

Effect of screening of separate parts of the animal body on the change in radiation reaction following action of gamma rays and high-energy protons. Probl. kosm. biol. 4:411-429 '65. (MIRA 18:9)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

GAYDAMAKIN, N.A.; ILYUKHIN, V.G.; SHASHKOV, V.S.; ANIKOV, V.V.; SAKSONOV, P.P.

Morphological changes in the hemopoietic organs of mice following irradiation with high-energy protons. Probl. kosm. biol. 4:430-436 '65. (MIRA 18:9)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

ZHUKOV-VERETSHNIKOV, N.N.; VOLKOV, M.N.; RYBAKOV, N.I.; SARSONOV, I.I.; KOZLOV, V.A.; KONSTANTINOV, P.A.; ANTIPOV, V.V.; [illegible], N.N.; ANISKIN, Ye.D.

New ways of studying chemical protection against genetic changes. Probl. kosm. biol. 4:445-450 '65. (MIRA 18:9)

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

L 14291-66 EWT(m)/ETC(F)/EPF(n)-2/EWG(m) GG/RD
ACC NR: AT6003875 SOURCE CODE: UR/2865/65/004/000/0411/0429

AUTHOR: Razgovorov, B. L.; Morozov, V. S.; Shashkov, V. S.; Antipov, V. V.; Dobrov, N. N.; Konnova, N. I.; L'vova, T. S.; Saksonov, P. P.

ORG: none

TITLE: Effect of screening individual parts of the body of animals on changes in radiation reaction on exposure to gamma rays and high-energy protons

SOURCE: AN SSSR. Otdeleniye biologicheskikh nauk. Problemy kosmicheskoy biologii, v. 4, 1965, 411-429

TOPIC TAGS: radiation shielding, RBE, rat, animal physiology, gamma irradiation, cobalt, radioisotope, proton, irradiation, radiation biologic effect

ABSTRACT: Previous experiments showed that screening of individual organs or parts of the body during large doses of x-rays or gamma rays can change both the degree of radiation sickness and the number of deaths. In this work experiments were conducted to determine the effect of screening during irradiation of animals with gamma rays and 120-Mev protons. White rats of both sexes were used. Co^{60} gamma irradiation with dose power of 15.5 r/min was used. Proton irradiation was conducted through

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L 14291-66
ACC NR: AT6003875

lead-shielded polyethylene blocks to lower the dose (dose power 60 ± 10 rad/min). During gamma irradiation, parts of the body were screened with steel plates (15 cm thick) of different widths. Plexiglas blocks 12—15 cm thick, which almost completely blocked the proton flux from the screened part, served as shields during proton irradiation. The biological effect of radiation under these conditions was determined by the survival rate of animals during a 30-day period after irradiation. Localized shielding during gamma irradiation of rats in a dose of 930 rad produced a definite increase in the survival rate, which was most effective during screening of the abdomen (80% survival rate as compared with 6% in the control). It was concluded that screening of the abdomen lowers the mortality index to the greatest degree and also is most effective in easing the course of radiation sickness and lessening the degree of leukopenia.

In a second series of experiments, the abdomens of rats were shielded with plexiglas blocks of different widths during irradiation with protons in the following dose ranges: 800— 1050 rad and 1100—1300 rad, and with gamma rays in doses of 930, 1100, and 1400 rad. It was found that screening the abdomen with a block 6 cm wide during proton irradiation with

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800— 1050 rad increased the survival rate to 86.4% (as compared with 19.4% in the control). A high survival rate (36.7—100%) was also observed when the abdomen was screened with blocks of various widths during gamma irradiation (930 rad). Screening of the abdomen during proton irradiation also prevented the development of severe gastrointestinal disease in many cases and caused rats to lose less weight. Experimental animals recovered weight more quickly and even exceeded initial weight levels. Weight changes during gamma irradiation followed the same pattern.

Preliminary experiments were also conducted to show the effect of screening under the combined influence of protons and acceleration or vibration. Results showed that neither 30 min of acceleration (10g) nor 1 hr of vibration (700 cps, amplitude 0.005 min) altered the effectiveness of screening during proton irradiation (doses 750— 1100 rad and 1050— 1300 rad, respectively). Furthermore, it was found that the effectiveness of screening the abdomen increases with increased radiation dose. There is not yet any adequate explanation of the screening effect although it may be connected with retention by the organism of undamaged tissue sections.

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L 14291-66

ACC NR: AT6003875

Orig. art. has: 5 figures and 4 tables. [ATD PRESS: 4091-F]

SUB CODE: 06 / SUBM DATE: none / ORIG REF: 011 / OTH REF: 010

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APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

L 14292-66 EWT(m)/EPF(n)-2 GO/RD

ACC NR: AT6003876 SOURCE CODE: UR/2865/65/004/000/0430/0436

AUTHOR: Gaydamakin, N. A.; Petrukhin, V. G.; Shashkov, V. S.; Antipov, V. V.; Saksonov, P. P. 51 B+1

ORG: none

TITLE: Morphological changes in the hematopoietic organs of mice after irradiation with high-energy protons 12, 44, 5

SOURCE: AN SSSR. Otdeleniye biologicheskikh nauk. Problemy kosmicheskoy biologii, v. 4, 1965, 430-436

TOPIC TAGS: proton, hematopiesis, RBE, morphology, irradiation, mouse, gamma irradiation, cobalt, radioisotope, ionizing irradiation, radiation biologic effect

ABSTRACT: Pathological changes in the morphology of the hematopoietic organs of male mice were studied after proton and gamma-irradiation. Some animals were subjected once to proton irradiation (dose, 830 rad; dose power, 400—600 rad/min), and others were irradiated from a Co^{60} source (dose, 650 r; dose power, 273 r/min). Control animals were not irradiated. The mice were killed with ether 3, 7, 15, 30, and 60 days after irradiation, and cells of the spleen, thymus gland, and bone marrow of the femur were

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examined microscopically. In animals that died from radiation sickness (9—12 days after irradiation), hemorrhages in the lungs and intestine were frequently observed. Comparison of the weight coefficients of the spleen and thymus (both showing a two-phase increase) did not reveal any statistically reliable differences in the effects of the two different types of irradiation on these organs. Observation of animals and comparative study of hematopoietic organs show that changes due to irradiation with protons and gamma-rays are similar. In the first few days after irradiation, the volume of follicles in the spleen decreased, and areas of myelopoiesis disappeared from the pulp. In the thymus gland, depletion of the cortical substance of lymphocytes was observed, and in the bone marrow destruction of the reticular stroma occurred. It must be noted that changes were less severe during irradiation with protons than with gamma-rays. However, complete recovery of the spleen did not occur in either case by the 60th day after irradiation. In general, it was concluded that restorative processes in all three structures studied proceeded more slowly in the gamma-irradiated animals. Previous experiments have also shown that there are no noticeable differences in the morphological

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L 14292-66
ACC NR: AT6003876

reactions of animals to different types of ionizing radiation. The degree of affliction, however, depends on the physical nature of the form of radiation, and doses vary. Orig. art. has: 1 table. [ATD PRESS: 4091-F]

SUB CODE: 06 / SUBM DATE: none / ORIG REF: 013 / OTH REF: 004

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

L 11252-66 FSS-2/EWT(1)/FS(s)/EWP(m)/FS(v)-3/EEC(k)-2/FCC/EWA(h) SCTB TT/DD/RD/GW

ACC NR: AT6003911 SOURCE CODE: UR/2865/65/004/000/0701/0708

84
82

AUTHOR: Morosov, V. S.; Shashkov, V. S.; Dayrdov, B. I.; Antipov, V. V.; Saksonov, P. P.; Dobrov, N. N.

ORG: none

TITLE: Modeling of radiation conditions on a circumlunar trajectory during a solar flare

SOURCE: AN SSSR. Otdeleniye biologicheskikh nauk. Problemy kosmicheskoy biologii, v. 4, 1965, 701-708

TOPIC TAGS: space flight simulation, mouse, radiation protection, lunar flight, radiation biologic effect, biologic acceleration effect, solar flare, gamma irradiation, lunar trajectory, radiation belt, antiradiation drug

ABSTRACT: The possibility of modeling the biological effect of radiation on a lunar flight which includes a short solar flare was demonstrated. White mice fed a special food concentration and kept in a biological unit were subjected to gamma-irradiation. Acute irradiation of other animals was conducted in plexiglas cages. In all cases the radiation dose was

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000--920 r. Dose power during acute irradiation was 18 r/min and during "solar flare" a maximum of 2.5 r/min (duration of flare, 24 hr). On the simulated lunar trajectory, the animals received a dose of 60--80 r while passing through the "radiation belts." Before the solar flare, the mice were injected with the following radioprotective agents: cystamine dihydrochloride, AET, and 5-methoxytryptamine hydrochloride.[4]

The experimental results showed that the effects of this pharmacological protection were slight as compared with unprotected animals. AET was the most effective radioprotective agent during both "lunar flight" and acute irradiation. On the lunar flight the animals were subjected to an acceleration of 20 g for 5 min before irradiation and at the end of the flight. It is suggested that the observed lowering of the biological effect of radiation during lunar flight (only 33% of the mice died, as against 90% after acute irradiation) is due not only to the lowered dose power, but also to acceleration. It is known that acceleration can alter the reactivity of an animal to subsequent irradiation. Previous experiments also suggest that preliminary irradiation of 60 r (in the radiation

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

L 14252-66
ACC NR: AT6003911

belts) reduced the effectiveness of the subsequent high dose during solar flare. It was concluded that modeling of radiation conditions for any spaceflight trajectory should be possible. Orig. art. has: 2 figures and 3 tables.
[ATD PRESS: 4091-F]

SUB CODE: 06 / SUBM DATE: none / ORIG REF: 006 / OTH REF: 006

Card 3/3

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

ANTIPOV, V.V., kand.tekhn. nauk; BYKOVA, M.N., red.

[Repair and adjustment of the fuel equipment of diesel tractors] Remont i regulirovanie toplivnoi apparatury dizel'nykh traktorov. Saratov, Privolzhskoe knizhnoe izd-vo, 1965. 177 p. (MIRA 18:11)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

VOLYNKIN, Yu.M.; ARUTYUNOV, G.A.; ANTIPOV, V.V.; ALTUKHOV, G.V.; BAYEVSKIY, R.M.; BELAY, V.Ye.; BOYAROV, P.V.; BRYANOV, I.I.; VASIL'YEV, P.V.; VOLOVICH, V.G.; GAGARIN, Yu.A.; GERIN, A.M.; GORBOV, F.D.; GORSHKOV, A.I.; GUROVSKIY, N.N.; YESHANOV, N.Kh.; YEGOROV, A.D.; KARPOV, Ye.A.; KOVALEV, V.V.; KOLOSOV, V.A.; KORESHKOV, A.A.; KAS'YAN, I.I.; KOTOVSKAYA, A.R.; KALIBERDIN, G.V.; KOPANEV, V.I.; KUZ'MIN, A.P.; KAKURIN, L.I.; KUDROVA, R.V.; LEBEDEV, V.I.; LEBEDEV, A.A.; LOBZIN, F.P.; MAKSIMOV, D.G.; MYASNIKOV, V.I.; MALYSHKIN, Ye.G.; NEUMYVAKIN, I.P.; ONISHCHENKO, V.F.; POPOV, I.G.; PORUCHIKOV, Ye.F.; SIL'VESTROV, M.N.; SERYAPIN, A.D.; SAKSONOV, P.P.; TERENT'YEV, V.G.; USHAKOV, A.S.; UDALOV, Yu.F.; FOMIN, V.S.; FOMIN, A.G.; KHLEBNIKOV, G.F.; YUGANOV, Ye.M.; YAZDOVSKIY, V.I.; KRICHAGIN, V.I.; AKULINICHEV, I.T.; SAVINICH, F.K.; SIMPURA, S.F.; VOSKRESENSKIY, O.G.; GAZENKO, O.G., SISAKYAN, N.M., akademik, red.

[Second group space flight and some results of the Soviet astronauts' flights on "Vostok" ships; scientific results of medical and biological research conducted during the second group space flight] Vtoroi gruppovoi kosmicheskii polet i nekotorye itogi poletov sovetskikh kosmonavtov na korabliakh "Vostok"; nauchnye rezul'taty medikobiologicheskikh issledovanii, provedennykh vo vremia vtorogo gruppovogo kosmicheskogo poleta. Moskva, Nauka, 1965. 277 p. (MIRA 18:6)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

[illegible], [illegible]; [illegible], V.M.; [illegible], [illegible]; SAKSO [illegible];
[illegible], [illegible]; [illegible], Yu.N.

Tests of [illegible] synthesized [illegible] derivatives for radiation-protective activity. Farm. i toks. 28 no.[illegible] N-D '65.
([illegible] 19:1)

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

ACC NR: AP5026059 SOURCE CODE: UR/0293/65/003/005/0789/0795

AUTHOR: Davydov, B. I.; Antipov, V. V.; Konnova, N. I.; Saksonov, P. P. 47

ORG: none

TITLE: Radiobiological effects in animals after the preliminary action of acceleration

SOURCE: Kosmicheskiye issledovaniya, v. 3, no. 5, 1965, 789-795

TOPIC TAGS: radiation biologic effect, biologic acceleration effect, combined space flight effect, animal physiology, gamma ray, 660 Mev proton

ABSTRACT: The following indices of the combined effect on the animal organism of acceleration and irradiation were examined: survival percentage, the reaction of radiosensitive organs (spleen and thymus), and some blood component levels. Male white mice were centrifuged (8—10 g for 15—30 min) 30 min, 4 hr, and 1 day prior to irradiation. One group of animals was irradiated with Co^{60} gamma rays in a dose of 700 rad (dose power 9.5 rad/min) and the other with 660-Mev protons in a dose of 1300 rad. Experimental results showed that under the combined influence of acceleration and irradiation, the $DL_{50/30}$ was approximately 100 rad higher than with irradiation only. However, the average lifetime of the animals which died during the 30-day period after irradiation (with a dose of 750 rad) was shortened by previous acceleration. Statistically reliable differences were not observed in the average weights of the spleen and thymus of animals centrifuged and then irradiated. Radiation leukopenia

Card 1/2 UDC: 629.198.621+629.198.61 (59)

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

ACC NR: AP5026059

with acceleration and ionizing radiation effects combined was less severe than with radiation alone. Several possible mechanisms of the modifying effect of acceleration on radiation injury are discussed. Experimental data still do not permit a complete evaluation of the acceleration effect on radiation injury depending on the time between these two influences. It should be noted that the weakening of the radiation effect observed with the preliminary influence of acceleration only concerns the period of acute radiation sickness and does not apply to all indices of radiation damage. Orig. art. has: 4 figures and 4 tables.

[JS]

SUB CODE: LS/ SUBM DATE: 03Jun65/ ORIG REF: 007/ OTH REF: 007/ ATD PRESS: 4/24

Card 2/2

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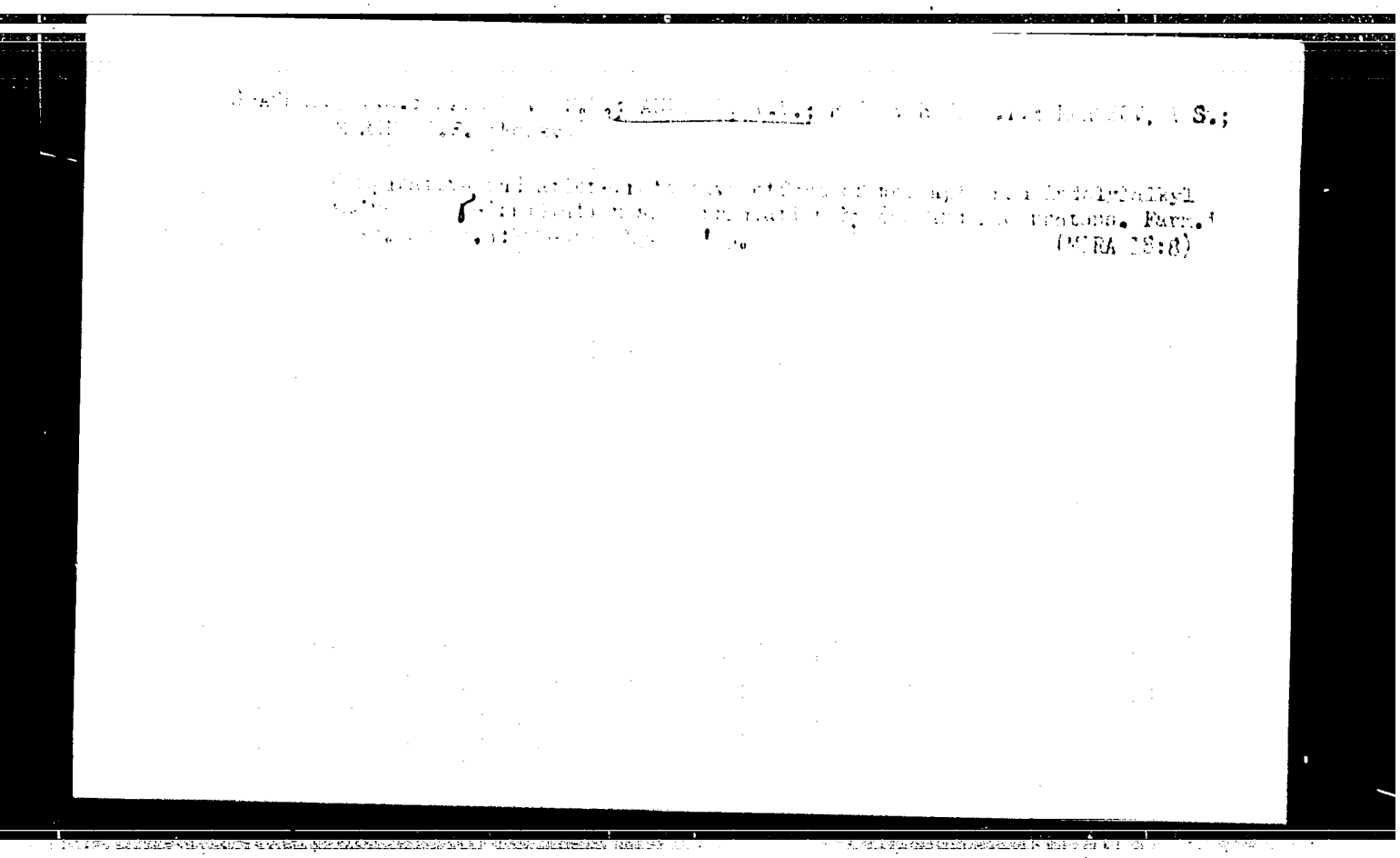
"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2



APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

ANTIPOV, V.V., kand. tekhn. nauk; POLYAKOV, M.L., inzh., retsenzent; SAVKIN, I.P., inzh., red.

[Wear of precision parts and the disturbance of the performance of a diesel-engine fuel system] Iznos pretsizionnykh detalei i narushenie kharakteristiki toplivnoi apparatury dizelei. Moskva, Mashinostroenie, 1965. 130 p. (MIRA 18:7)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

MOROZOV, V.S.; SHASHKOV, V.S.; PAVLOV, B.I.; ANTIPOV, V.V., SARKISOV, P.P.; DOBROV, N.N.

Modeling radiation conditions during solar flares on the trajectory of the flight around the moon. Probl. kosm. biol. 4:701-708 '65. (MIRA 18:9)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

L 12777-66 FSS-2/EWT(1)/FS(v)-3/EEC(k)-2/EWA(d) SCTB IT/DD/GW

ACC NR: AP6004398 SOURCE CODE: UR/0020/66/166/003/0713/0715

AUTHOR: Delone, N. L.; Yegorov, B. B.; Antipov, V. V. 31

ORG: none B

TITLE: The sensitivity of the mitotic phases of Tradescantia paludosa microspores to Voskhod-1 space-flight factors

SOURCE: AN SSSR. Doklady, v. 166, no. 3, 1966, 713-715

TOPIC TAGS: Voskhod 1, microspore, Tradescantia paludosa, mitosis, space flight effect, combined stress

ABSTRACT: The authors analyzed the effects of the Voskhod-1 flight (including lift-off and reentry) on the various mitotic phases of Tradescantia paludosa microspores. Samples of the microspores with their inflorescences were placed in special containers which were attached to the interior of the space cabin. These samples were fixed at four times after the landing: 1) at 2 hr, 15 min (corresponding to middle and late prophase during the flight); 2) 24 hr; 3) 48 hr (corresponding to late interphase); 4) 120 hr (corresponding to early interphase). Some results of the analyses are shown in Tables 1 and 2 and Figures 1 and 2. The results of the experiments agreed

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Table 1. Number of chromosomal rearrangements

Sample time after landing	No. of chromosomes	No. of rearrangements				Type					
						Fragments			Recombination		
		abs.	%	±m	R*	abs	%	±m	abs.	%	±m
2 hr, 15 min	9000	181	1.99	0.14	11.0	118	1.30	0.10	63	0.69	0.09
24 hr	6418	60	0.90	0.10	8.7	42	0.63	0.10	18	0.27	0.06
96 hr	12318	44	0.35	0.05	6.6	33	0.26	0.04	11	0.09	0.02
120 hr	20406	62	0.30	0.04	6.8	48	0.23	0.01	14	0.07	0.09
Control ** 1	9102	6	0.06	0.02	—	5	0.05	0.02	1	0.01	0.01
2	6324	2	0.03	—	—	2	0.03	—	—	—	—

* R – Reliability index of the variant and control – 2
** 1 – Cosmodrome control – Moscow control

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ACC NR: AP6004398

Table 2. Number of microspore cells with mitotic disruptions

Sample time after landing		No. of cells with disruptions			Type of disruption									
					I		II		III		IV		V	
		abs.	%	±m	abs.	%	abs.	%	abs.	%	abs.	%	abs.	%
2 hr, 15 min	1031	12	0.72	0.21	1	0.06	3	0.18	0	0.18	--	--	--	--
24 hr	1212	12	0.97	0.29	2	0.16	4	0.32	6	0.48	--	--	--	--
48 hr	2101	51	2.57	0.35	15	0.71	24	1.21	9	0.43	3	0.11	1	0.05
120 hr	2111	3	0.09	0.05	2	0.06	--	--	--	--	1	0.01	--	--

I - Nucleus remains at the cell wall, chromosomes do not diverge at anaphase and remain attached to the cleavage plane. Mononucleate cells are formed instead of dinucleate. II - During metaphase all chromosomes appear to be joined by the cleavage plane in a rosette pattern and mononucleate cells are formed. III - The spindle plane orientation is altered; chromosomes during metaphase and telophase and the nuclei in binucleate cells are situated along an abnormal plane. IV - Nondivergence by chromosomes which remain in a telophase attitude. V - Tri- and quadripolar mitosis.

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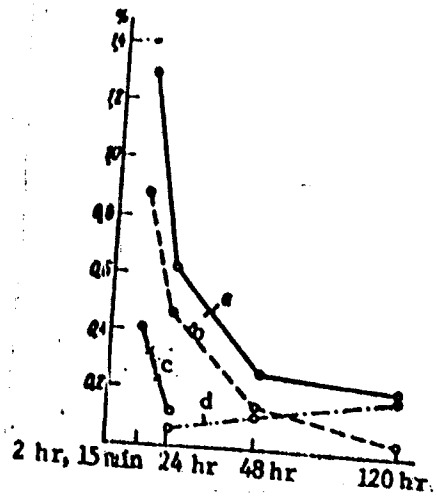

Fig. 1. Types of fragments resulting from the Voskhod-1 flight.

a - Total fragments; b - chromosomal and isochromatid fragments; c - chromatid fragments; d - spherical fragments.

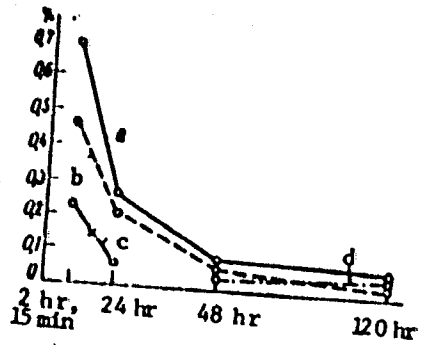

Fig. 2. Types of recombination resulting from the Voskhod-1 flight.

a - Total fragments; b - chromosomal and isochromatid fragments; c - chromatid fragments; d - spherical fragments.

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

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ACC NR: AP6004398

with those of the Vostok-4 and Vostok-5 flights. The authors did not speculate on which space-flight factor was responsible for the observed mitotic disruptions. A slightly more expanded version of this article appeared in "Kosmicheskiye issledovaniya," no. 1, 1966, 156-161. Orig. art. has: 3 figures and 2 tables.

[CD]

SUB CODE: 06/ SUBM DATE: 07Sep65/ ORIG REF: 002/ ATD PRESS: 4184

Card 5/5 HW

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

L 23976-66 EWT(l)/EWT(m)/FCC/EWA(h) SCTB DD/RD/GW

ACC NR: AT6003847 SOURCE CODE: UR/2865/65/004/000/0119/0126

AUTHOR: Saksonov, P. P.; Antipov, V. V.; Dobrov, N. N.; Shashkov, V. S.; Kozlov, V. A.; Pershin, V. S.; Davydov, B. I.; Razgovorov, B. L.; Morozov, V. S.; Nikitin, M. D.

68

ORG: none

B+1

TITLE: Perspectives of pharmacochemical protection from radioactive damage during cosmic flights

SOURCE: AN SSSR. Otdeleniye biologicheskikh nauk. Problemy kosmicheskoy biologii, v. 4, 1965, 119-126

TOPIC TAGS: astronaut, space medicine, radiation biologic effect, antiradiation drug, biologic acceleration effect, mouse, experiment animal, space physiology, closed ecology system, space flight

ABSTRACT: The authors consider cosmic radiation a real danger for astronauts, particularly during long flights. The work is a survey on existing radioprotectors and a general discussion of biologic conditions in cosmic flight, future research, and requirements for radioprotectors. The present chemical compounds, Mercamine HCL, its salicylate and disulfide, and AET appear sufficiently effective for clinical use against

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ACC NR: AT6003847

X or gamma rays. Laboratory tests on mice showed that some compounds of the aminothiol series (cystamine, cysteamine, serotonin, AET) exerted significant protective effect in proton irradiation of 600 and 120 Mev. In the search for radioprotectors, other factors affecting the astronaut must also be taken into account, such as weightlessness, vibration, acceleration and changes in pressure. Tests on laboratory animals subjected to such conditions prior to irradiation showed no effect on radiation sickness, but vibration after irradiation was apt to prolong the sickness. Some of the radioprotectors tested in mice and dogs had an adverse effect on stability of the organism under vibration and acceleration. The authors call for studies to establish a stable ecologic system in the cabin which can accompany the astronaut on long trips, for models simulating cosmic flight conditions particularly in regard to radiation dose, and for radioprotective compounds to be compatible with all these conditions. Orig. art. has: none.

SUB CODE: 06, 22/ SUBM DATE: none/ ORIG REF: 040/ OTH REF: 028

Card 2/2

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

L 24370-66 FSS-2/EWT(1)/EWT(m)/EEC(k)-2/FCC/EWA(h) SCTB TT/DD/GW

ACC NR: AT6003848 SOURCE CODE: UR/2865/65/004/000/0127/0138

AUTHOR: Volynkin, Yu. M; Antipov, V. V.; Guda, V. A.; Nikitin, M. D.; Saksonov, P. P.

ORG: Department of Biological Sciences, Academy of Sciences USSR (AN SSSR. Otdeleniye biologicheskikh nauk)

TITLE: Biological evaluation of radiation conditions for earth to moon flight

SOURCE: AN SSSR. Otdeleniye biologicheskikh nauk. Problemy kosmicheskoy biologii, v. 4, 1965, 127-138

TOPIC TAGS: bioastronautics, space radiation, solar flare, irradiation dosimetry, radiation shielding

ABSTRACT: The physical characteristics and maximum permissible biological doses of the basic types of cosmic radiation are considered. Radiation doses for primary cosmic radiation from natural and artificial belts with a radiation shield of 1 to 2 g/cm^2 should not exceed 10 rem for a two week flight around the moon. In case of an emergency return from an altitude of 75,000 km by the least favorable trajectory, the maximum dose would probably be about 20 rem and a radiation shield of 1 to 2 g/cm^2 would still provide adequate radiation protection for crew

Card 1/2

ACC NR: AT6003848

members. Proton radiation of solar flares represents a real threat to the health and lives of astronauts. The protection against solar flares of the type witnessed Aug. 22, 1959, the radiation shield may be increased to 3 g/cm^2. However, the problem of protection against solar flares of the type witnessed July 10, 1959 and February 23, 1956 cannot be solved technically at this time. The safety of the astronaut can also be increased with the use of solar flare forecasts. Present forecasting methods predict the appearance of solar flares 2 to 3 days in advance with 75% accuracy. Improved forecasting methods should be accompanied by the development of new types of forecasting instruments. Increasing body resistance to proton radiation of solar flares with the use of various pharmaceutical chemical preparations appears promising. Orig. art. has: 2 tables.

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 021/ OTH REF: 020

Card 2/2

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

L 14295-66 EWT(m)/EPF(n)-2 GG/RD

ACC NR: AT6003878 SOURCE CODE: UR/2865/65/004/000/0445/0450

AUTHOR: Zhukov-Verezhnikov, N. N.; Volkov, M. N.; Rybakov, N. I.; Saksonov, P. P.; Kozlov, V. A.; Konstantinov, P. A.; Antipov, V. V.; Dobrov, N. N.; Aniskin, Ye. D.

ORG: none

19,44,55

TITLE: New ways of studying chemical protection against genetic changes 841

SOURCE: AN SSSR. Otdeleniye biologicheskikh nauk. Problemy kosmicheskoy biologii, v. 4, 1965, 445-450

TOPIC TAGS: bacteria, x ray irradiation, bacterial genetics, chemical agent

ABSTRACT: Aminothiols and some pyrimidine analogs were tested for their ability to block development of infectious phage from prophage after induction of E. coli K-12 (λ) with x-rays. Doses with a previously established non-toxic effect (0.05% concentration) were used. The desired chemical preparation was added to a bacterial culture diluted in a physiological medium. Experimental and control samples were subjected to x-ray irradiation (dose, 15,000 r) and then cultured on agar. The number of induced phage particles in irradiated samples with and without each preparation was then compared. 2-Mercaptopropylamine hydrochloride was

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most effective; cultures treated with it produced 119 times fewer phage particles than control samples. Other good inhibitors of induced phage formation were 2-(gamma-aminopropyl) disulfide dihydrobromide, sodium diethyldithiocarbamate and ammonium dithiocarbamate, which reduced phage production 76.3—70.1 times. Less effective were the salts of β -mercaptoethylamine tested: 2-mercaptoethylamine hydrobromide, 2-mercaptoethylamine disulfide hydrochloride, 2-mercaptoethylamine hydroiodide, and 2-mercaptoethylamine hydrochloride.

The experimental data show the essential connection between the chemical structure of the tested preparations and their ability to block the development of infectious phage. The antigenetic effect of β -mercaptoethylamine preparations is determined by their acid radicals as well as by their base. It may be possible to obtain even more effective preparations of this compound by forming salts with other acids. The failure of 3-β -aminoethylisothiuronium hydrobromide to produce an antigenetic effect is especially interesting because in previous experiments this compound decreased the death rate of animals subjected to a lethal radiation dose by 70-100%. Orig. art. has: 1 table. [ATD PRESS: 4091-F]

SUB CODE: 06 / SUBM DATE: none / ORIG REF: 013 / OTH REF: 003

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L 14294-66

ACC NR: AT6003881

tained in the second generation. However, preparation P-46 completely removed the injurious radiation effect in that generation. Experimental data indicate the possibility of partially or completely removing the depressing effect of β-radiation on plants with the help of physiologically active compounds. Orig. art. has: 4 tables. [ATD PRESS: 4091-F]

SUB CODE: 06 / SUBM DATE: none / ORIG REF: 004 / OTH REF: 005

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L 23955-66 FSS-2/EWT(l)/EEC(k)-2/EWA(d) SCTB TT/DD/RD/GW

ACC NR: AT6003859 SOURCE CODE: UR/2865/65/004/000/0248/0260

AUTHOR: Antipov, V. V.; Delone, N. L.; Parfonov, G. P.; Vysotskiy, V. G.

ORG: none

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48
B+1

TITLE: Results of biologic experiments conducted under flight conditions in the "Vostok" spaceships with participation of the astronauts A. G. Nikolayev, P. R. Popovich and V. G. Vysotskiy

SOURCE: AN SSSR. Otdeleniye biologicheskikh nauk. Problemy kosmicheskoy biologii, v. 4, 1965, 248-260

TOPIC TAGS: experiment animal, space biologic experiment, biologic acceleration effect, radiation biologic effect, space biology, biologic mutation

ABSTRACT: The effect of motion, weightlessness and cosmic radiation on propagation, growth and development of organisms was studied in Drosophila melanogaster and Tradescantia paludosa. Male and female flies were placed into separate glass tubes 6 hours before start of flight and were fed agar agar and sugar. During flight the two sexes were put into one glass. On the next flight the progeny from eggs laid during weightlessness was taken along under the same conditions. The

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L 23995-66
ACC NR: AT6003859

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flies emerged from the cocoons 6 days later than controls, probably due to the cooler climate in the space cabin. More females than males emerged, the weight of the test flies was lower (due probably to the high agar content of the diet) and 4 anomalies were seen in 482 flies, involving only one half of the body. No mutants were seen. It is concluded that results were normal for the 4 days' flight, but that these findings have only qualitative value. Similar arrangements were made for observing propagation of the plants during flight. Cuttings of raceme of Tradescantia clone were put into a container, to be fixated by the astronauts 6 and 9 hours respectively after the start of the two flights. Cytologic analysis showed chromosome aberration, disturbance of mitosis and growth processes, and altogether 4 types of disturbances involving the nucleus and the mechanism of mitosis. These disturbances are ascribed mainly to motion, since the radiation dose was very low (40-80 millirad). Orig. art. has: 7 figures.

SUB CODE: 06,22/SUBM DATE: none/ ORIG REF: 006

[ADD CLUE WORD
Vostok 3 12 Vostok 4 12]

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L 14245-66 FSS-2/EWT(l)/EWA(j)/FS(v)-3/ZEC(k)-2/EWA(d)/T/EWA(b)-2 SCTB TT/DD/JK/RD,
ACC NR: AT6003860 GW SOURCE CODE: UR/2865/65/004/000/0261/0269

AUTHOR: Zhukov-Verezhnikov, N. N.; Rybakov, N. I.; Kozlov, V. A.; Saksonov, P. P.; Dobrov, N. N.; Antipov, V. V.; Podoplelov, I. I.; Parfenov, G. P.

ORG: none

TITLE: Results of microbiological and cytological investigations conducted during the flights of "Vostok" type vehicles

SOURCE: AN SSSR. Otdeleniye biologicheskikh nauk. Problemy kosmicheskoy biologii, v. 4, 1965, 261-269

TOPIC TAGS: bacteria, genetics, bacterial genetics, gamma irradiation, cobalt, radioisotope, microbiology, cytology, space biologic experiment, radiation biologic effect, biologic vibration effect

ABSTRACT: The biological objects used for space research are carefully selected genetic indicators. E. coli K-12 (λ), frequently chosen for these experiments, is a reliable biological dosimeter of the genetic effectiveness of spaceflight factors. When normal and cancerous human cells were exposed in the Vostok series, it was found that these experimental samples did not differ essentially from control samples kept on earth However, some tendency to intensification of phage production was observed in cultures

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ACC NR: AT6003860

of E. coli in this series (an increase by a factor of 1.2 on Vostok-2, 4.6 on Vostok-3, and 1.96 on Vostok-4). Data from repeated exposure of the same biological object indicate accumulation of the spaceflight effect, although the character of this accumulation is not clear. In a comparison of the results of Vostoks 3-6, it was not possible to establish a linear dependence of biological effect on time of exposure in space. However, factors causing a genetic effect (an increase in the phage-producing activity of a lysogenic culture) definitely operated during these flights.

The following derived values of induced phage production were calculated: ~3 for Vostoks 3 and 5 (corresponding to the inducing effect of 3.2 rad of gamma-rays), and 1.8 for Vostoks 4 and 6 (corresponding to 0.8 rad of gamma-rays). Since the doses quoted are higher than those encountered in spaceflight, the observed genetic effect must therefore be partially due to other factors (such as weightlessness, acceleration, vibration, etc.).

To study the operation of one of these factors, E. coli K-12 was subjected to vibrations of 18, 35, 75, 100, and 700 cps for 15—30 min. and, in another series of experiments, to vibration in combination with Co^{60}

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ACC NR: AT6003860

gamma-irradiation (dose, 100 rad; dose power, 21 rad/min). The experimental results show that vibration alone does not induce phage production but does increase the sensitivity of lysogenic bacteria to the subsequent influence of gamma-irradiation. It is suggested that vibration helps sensitize cells of a lysogenic culture to the influence of cosmic radiation, although it is also possible that the cause of genetic changes is weightlessness in combination with radiation. Orig. art. has: 1 figure and 4 tables.
[ATD PRESS: 4091-F]

SUB CODE: 06 / SUBM DATE: none / ORIG REF: 009 / OTH REF: 002

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2

ACC NR: AP6019602 SOURCE CODE: UR/0293/66/004/003/0482/0491

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49
B

AUTHOR: Davydov, B. I.; Antipov, V. V.; Kozlov, V. A.; Saksonov, P. P.; Shashkov, V. S.

ORG: none

TITLE: The problem of using radioprotective pharmacological agents under spaceflight conditions

SOURCE: Kosmicheskiye issledovaniye, v. 4, no. 3, 1966, 482-491

TOPIC TAGS: manned spaceflight, radiation protection, cystamine, methoxytryptamine, acceleration, animal physiology

ABSTRACT: In tests on mice (exposed three times to 44.4 G, 1.4 G/sec accelerations, with 5 min per exposure and 5 min between exposures on a centrifuge with a 4.25 m arm length) and guinea pigs (exposed twice to 22.0 G, 0.7 G/sec with 5 min between exposures), lowered resistance to acceleration was noted after injections of cystamine (80—150 mg/kg), AET (15—150 mg/kg), 5-methoxytryptamine (75 mg/kg), serotonin (50 mg/kg), and aminazine (1—10 mg/kg). A change in resistance after injections of phenatine (2—10 mg/kg) and strychnine (0.05 mg/kg) was insignificant. Thirty min after the combined injection of phenatine (5—10 mg), strychnine (0.5—1.0 mg), and aminazine (2.5 mg), the EKG's and respiration of dogs exposed to 6—8 G (0.2—0.3 G/sec) did not differ from those of control centrifuged animals.

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ACC NR: AP6019602

It was concluded that extreme caution should be exercised in recommending radioprotectors, expecially AET, cystamine, and 5-methoxytryptamine, for use on spaceflights. The authors thank S. N. Komarov for his active participation in the study. Orig. art. has: 5 figures and 3 tables. [CD]

SUB CODE: 06,22/ SUBM DATE: 28Feb66/ ORIG REF: 017/ OTH REF: 013/ ATD PRESS: 5029

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APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720008-2"